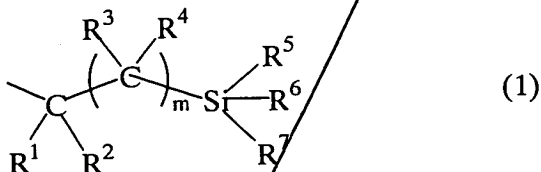


CLAIMS:

1. A polymer having silicon-containing groups of the general formula (1):



wherein R¹ to R⁴ each are independently hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms, or R¹ and R², taken together, may form an aliphatic hydrocarbon ring in which -CH₂- may be substituted with a -Si(R⁸)₂- group, and R³ and R⁴, taken together, may form an aliphatic hydrocarbon ring in which -CH₂- may be substituted with a -Si(R⁸)₂- group,

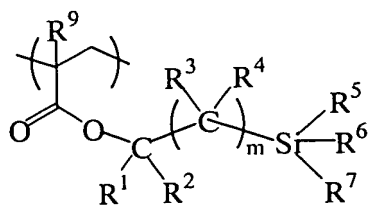
R⁵ to R⁷ each are independently a straight, branched or cyclic alkyl or fluorinated alkyl group of 1 to 20 carbon atoms or aryl group of 6 to 20 carbon atoms,

R⁸ is independently a straight or branched alkyl group of 1 to 4 carbon atoms, and

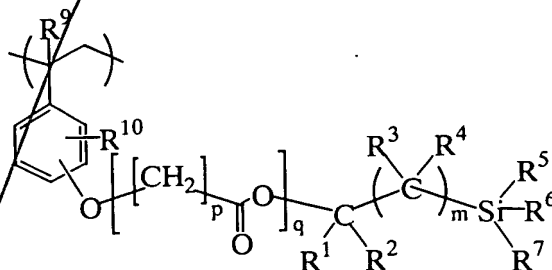
m is 1 or 2.

2. The polymer of claim 1 wherein hydrogen atoms of hydroxyl groups on a carboxylic acid, alcohol or phenol are substituted with the silicon-containing groups of the general formula (1).

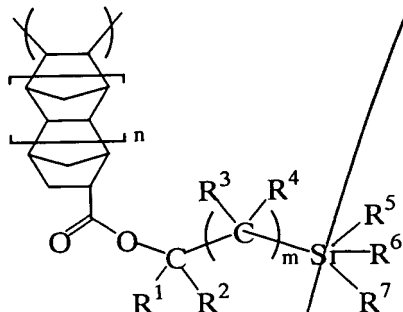
3. A polymer comprising recurring units of one of the general formulae (2) to (5):



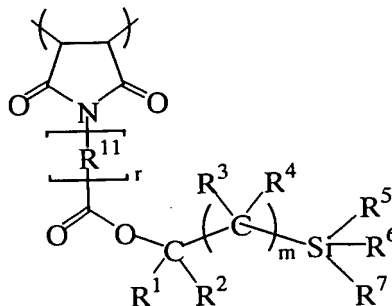
(2)



(3)



(4)



(5)

wherein R^1 to R^4 each are independently hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms, or R^1 and R^2 , taken together, may form an aliphatic hydrocarbon ring in which $-CH_2-$ may be substituted with a $-Si(R^8)_2-$ group, and R^3 and R^4 , taken together, may form an aliphatic hydrocarbon ring in which $-CH_2-$ may be substituted with a $-Si(R^8)_2-$ group,

R^5 to R^7 each are independently a straight, branched or cyclic alkyl or fluorinated alkyl group of 1 to 20 carbon atoms or aryl group of 6 to 20 carbon atoms,

R^8 is independently a straight or branched alkyl group of 1 to 4 carbon atoms,

R^9 is hydrogen, a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms, or $CH_2CO_2R^{12}$,

R^{10} is hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms,

all
R¹¹ is a straight, branched or cyclic alkylene group of 1 to 10 carbon atoms,

R¹² is hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms,

5 m is 1 or 2, n is a number of 0 to 5, p is a number of 1 to 5, each of q and r is 0 or 1.

4. A chemically amplified positive resist composition comprising:

- 10 (A) the polymer of claim 1,
(B) a photoacid generator, and
(C) an organic solvent.

15 5. The resist composition of claim 4 further comprising a basic compound.

6. A chemically amplified positive resist composition comprising:

- 20 (A) the polymer of claim 1,
(B) a photoacid generator,
(C) an organic solvent, and
(D) a dissolution rate inhibitor having an acid labile group.

25 7. The resist composition of claim 6 further comprising a basic compound.

8. A process for forming a pattern, comprising the steps of:

- 30 applying the positive resist composition of claim 4 onto an organic film on a substrate to form a coating,
prebaking the coating to form a resist film,
35 exposing the resist film in a pattern circuit region to radiation
post-exposure baking the resist film,

add
developing the resist film with an aqueous alkaline solution to dissolve away the exposed area, thereby forming a resist pattern, and

5 processing the organic film with an oxygen plasma generated by a dry etching apparatus.

add Q³

SECRET